

## C L A I M S

What is claimed and desired to be secured by Letters Patent is as follows:

1. A centerline spinal fusion interbody spacer assembly for implanting to maintain a selected intervertebral spacing between an adjacent pair of vertebrae having mutually facing vertebral surfaces, said assembly comprising:
  - (a) an interbody spacer member configured sized and shaped to enable implanting between an adjacent pair of vertebrae to engage mutually facing vertebral surfaces of the vertebrae to thereby maintain a selected intervertebral spacing therebetween; and
  - (b) said spacer member being further configured to enable said spacer member to be positioned in substantial alignment with a median plane of the vertebrae as a single such spacer.

2. An assembly as set forth in Claim 1 wherein:
  - (a) said spacer member is a screw in type spacer and includes an external thread positioned on said spacer member in such a manner as to be sized and shaped to threadedly engage the vertebral surfaces when implanted between the vertebrae.
3. An assembly as set forth in Claim 1 wherein said spacer member includes:
  - (a) a superior vertebra engaging surface and an opposite inferior vertebra engaging surface; and
  - (b) at least a portion of each of said superior surface and said inferior surface have a thread thereon having crests that are aligned to form a partial cylindrical surface.
4. An assembly as set forth in Claim 3 wherein said spacer member includes:
  - (a) opposite lateral surfaces; and
  - (b) each of said lateral surfaces being substantially concave.

5. An assembly as set forth in Claim 3 wherein:
  - (a) said thread has a root that followings a path located on a funnel shaped surface and having a root with a greatest radius near an anterior end of said spacer member and with a smallest radius near a posterior end of said spacer member.
6. An assembly as set forth in Claim 1 wherein each of the vertebral surfaces includes an inner central region and an outer edge region, and including:
  - (a) an end cap member securable to said spacer member having a superior cap surface and an opposite inferior cap surface; and
  - (b) said end cap member being secured to said spacer member in such a manner that said spacer member engages central regions of the vertebral surfaces and said cap surfaces of said end cap member engage edge regions of the vertebral surfaces.
7. An assembly as set forth in Claim 6 wherein:
  - (a) said end cap includes a pair of wing portions extending laterally on opposite sides of said end cap and being adapted to engage said edge regions

of the vertebral surfaces to thereby laterally stabilize a spatial relationship between the vertebrae during usage.

8. An assembly as set forth in Claim 1 and including:
  - (a) stabilizing structure securable to said spacer member and laterally extending therefrom to be adapted to engage and support the vertebrae in such a manner as to laterally stabilize a spatial relationship between the vertebrae and to thereby prevent tendencies of the vertebrae to pivot about said spacer member.
9. An assembly as set forth in Claim 1 wherein each of the vertebral surfaces includes an inner central region and an outer edge region, and including:
  - (a) stabilizing structure connected to said spacer member and extending laterally from opposite sides of said spacer member; and
  - (b) said stabilizing structure being sized and shaped to be adapted to engage edge regions of the vertebral surfaces to thereby stabilize a spatial relationship between the vertebrae.

10. A spinal fusion interbody spacer assembly for maintaining a selected intervertebral spacing between an adjacent pair of vertebrae having mutually facing vertebral surfaces, each vertebral surface including an inner central region and an outer edge region, said assembly comprising:
- (a) an interbody spacer member sized and shaped so as to be adapted to enable implanting of said member between an adjacent pair of vertebrae to engage and support certain central regions of mutually facing vertebral surfaces of the vertebrae;
  - (b) an end cap joinable with said spacer member and configured in such a manner as to be adapted to enable implanting between edge regions of the vertebrae, said end cap including a pair of wing portions extending laterally on opposite sides of said end cap, said end cap and said wing portions being sized and shaped to engaged said edge regions of the vertebral surfaces; and
  - (c) said end cap being removably securable to said spacer member and cooperating therewith to maintain the selected intervertebral spacing between the vertebrae.

11. An assembly as set forth in Claim 10 wherein:
  - (a) said spacer member and said end cap cooperate to position said spacer member in substantial alignment with a median plane of the vertebrae.
12. An assembly as set forth in Claim 10 and including:
  - (a) at least one resilient pawl positioned on said end cap;
  - (b) a pawl receiving recess formed on said spacer member; and
  - (c) said end cap being secured to said spacer member by resilient engagement of said pawl with said recess.

13. An assembly as set forth in Claim 10 and including:
- (a) a pair of resilient pawls positioned in opposed relation on said end cap;
  - (b) a recess structure forming a respective pawl receiving recess on each of opposite sides of said spacer member; and
  - (c) said end cap being secured to said spacer member by resilient engagement of each of said pawls with a respective pawl receiving recess of said spacer member.
14. An assembly as set forth in Claim 10 wherein:
- (a) said spacer member includes external threads positioned on said spacer member in such a manner as to threadedly engage the vertebral surfaces when implanted between the vertebrae.

15. An assembly as set forth in Claim 14 wherein said spacer member includes:
  - (a) a superior vertebra engaging surface and an opposite inferior vertebra engaging surface; and
  - (b) at least a portion of each of said superior surface and said inferior surface having threads thereon with crests that are located so as to be positioned on a cylindrical shaped and discontinuous surface.
16. An assembly as set forth in Claim 15 wherein said spacer member includes:
  - (a) opposite lateral surfaces; and
  - (b) each of said lateral surfaces being substantially concave.
17. An assembly as set forth in Claim 15 wherein:
  - (a) said threads have roots that are located so as to be positioned on a funnel shaped and discontinuous surface having a greatest radius near an anterior end of said spacer member.



18. An assembly as set forth in Claim 10 and including:
- (a) said end cap and said wing portions having a generally continuous superior cap surface and an opposite inferior cap surface; and
  - (b) said end cap being secured to said spacer member in such a manner that when in use said cap surfaces is adapted to engage the edge regions of the vertebral surfaces.
19. In a centerline spinal fusion interbody spacer assembly for implanting to maintain a selected intervertebral spacing between an adjacent pair of vertebrae having mutually facing vertebral surfaces the improvement comprising:
- (a) said spacer member being further sized and shaped to enable said spacer member in use to be positioned in substantial alignment with a median plane of the vertebrae as a single unit.

20. An assembly as set forth in Claim 19 wherein:
- (a) said spacer member is a screw in device and includes external threads positioned on said spacer member in such a manner as to be adapted to threadedly engage the vertebral surfaces when implanted between the vertebrae.
21. An assembly as set forth in Claim 19 wherein said spacer member includes:
- (a) a superior vertebra engaging surface and an opposite inferior vertebra engaging surface; and
  - (b) at least a portion of each of said superior surface and said inferior surface having threads with crests that are located on a substantially cylindrical surface.
22. An assembly as set forth in Claim 21 wherein said spacer member includes:
- (a) opposite lateral surfaces; and
  - (b) each of said lateral surfaces being substantially concave.

23. An assembly as set forth in Claim 21 wherein:
- (a) said threads have roots that are located on a partial substantially funnel shaped surface having a greatest radius at an anterior end of said spacer member.
24. An assembly as set forth in Claim 19 wherein each of the vertebral surfaces includes an inner central region and an outer edge region, and including:
- (a) an end cap member having a superior cap surface and an opposite inferior cap surface; and
  - (b) said end cap member being secured to said spacer member during use in such a manner that said spacer member is adapted to engage the central regions of the vertebral surfaces and said cap surfaces of said end cap member engage edge regions of the vertebral surfaces.
25. An assembly as set forth in Claim 24 wherein:
- (a) said end cap includes a pair of wing portions extending laterally on opposite sides of said end cap to sized and shaped to be adapted to engage the edge regions of the vertebral surfaces during

use to thereby laterally stabilize a spatial relationship between the vertebrae.

26. An assembly as set forth in Claim 19 and including:
  - (a) stabilizing structure joined to said spacer member during use and adapted to engage the vertebrae in such a manner as to laterally stabilize a spatial relationship between the vertebrae to thereby prevent tendencies of the vertebrae to pivot about said spacer member.
27. An assembly as set forth in Claim 19 wherein each of the vertebral surfaces includes an inner central region and an outer edge region, and including:
  - (a) stabilizing structure connected to said spacer member and extending laterally from opposite sides of said spacer member; and
  - (b) said stabilizing structure being sized and shaped to engage edge regions of the vertebral surfaces to thereby stabilize a spatial relationship between the vertebrae.

28. A method of stabilizing between a pair of vertebrae including the steps of:
- (a) placing a single midline spacer having a cylindrical profile between said vertebrae so as to be located in a median plane relative to said vertebrae; and
  - (b) placing an end cap on said spacer such that said end cap engages said vertebrae and resist lateral rotation of said vertebrae about said spacer.
29. The method according to Claim 28 including wherein said end cap has laterally extending wings with upper and lower surfaces and including the step of:
- (a) positioning said surfaces into engagement with said vertebrae.